TELLTALE ARTERIES

The Story of Blood Pressure

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THE STORY OF BLOOD PRESSURE

BLOOD pressure may be defined as something persons of more than 40 worry about. That is a very limited definition, but it contains two points worthy of special notice and of warnings. One is *worry;* the other is *more than 40.* Do not worry about blood pressure. Instead, try to understand it. Then if you must worry, do it before you are 40.

A little self-study helps to understand blood pressure. Put the first and second fingers of your left hand on the palm side of your right wrist and try to find your own pulse. It takes a little time if you aren't used to it. If you can't find it at the wrist, find it at the temple. Feel how it beats—"thump, thump, thump"—day and night, sixty to eighty times to the minute. Feel it for a half minute. Notice, too, that the artery is round, soft and full. Now press down a little harder and then still a little harder. What happens? Well—the thumping disappears. You can still feel the beating with your first finger, but it doesn't get by to the second one. Why? Because by pressing down hard you block the artery and the blood doesn't get by.

Now suppose you were asked, "How hard did you have to press in order to block the artery?" You'd find it rather difficult to say, wouldn't you? All you know is that you pressed hard enough to overcome the force of the blood in the artery. How much pressure it took, you can't tell.

Now suppose you went to your doctor and said, "Doctor, what is my blood pressure?" He would get right to business and measure it with an instrument. That instrument either has a dial or a tube full of mercury, and by means of these he can tell how much pressure he applied. And when he had finished the job of measuring your blood pressure he would say to you in his learned manner, "Well, sir, your systolic pressure is 120; your diastolic pressure, 80; your pulse pressure therefore is 40."

Then you would probably blink your eyes, shake your head a little and ask: "One hundred and twenty—what?" And the doctor would continue, "Why, 120 millimeters of mercury."

At this point you would smile a little and appealingly say to the doctor: "Look here, there is no use talking that language to me—I don't understand it. Now suppose you tell me in simple words what it is all about."

A Plain Definition

Then if the doctor were in a good humor, and wasn't too tired and didn't have too many patients waiting, he probably would ask you to draw up a chair and then with pencil and paper he would begin something like this:

"Now, sir, on the left side of your chest there is a big hollow muscle called the heart, and that heart is essentially a pump. Connected with this pump is a series of pipes. One of these pipes, called the aorta, takes the

blood from the heart, and through many smaller pipes which branch from it, takes it to all parts of the body. Then, through many little tubes which unite to form large vessels, the blood is brought back again to the heart.

"The blood system in its simplest form can be thought of as a central pump, with one big pipe that carries the blood away from it, and another big pipe that brings the blood to it. This pipe system, for our purposes, may be thought of as completely closed, and the pump just keeps on moving the blood round and round and round. In order to move the blood through the body it is necessary that some force be applied to it, and this force comes from the contractions of the heart.

"While we compare the heart and the blood vessels to a pump and pipes, the comparison isn't quite correct, because pumps and pipes, as we know them in the outside world, are usually made of metal, and metal doesn't enlarge or grow smaller to any degree. But the pump and the pipes in the human machine—that is, the heart and the blood vessels—are made up of living tissue, and this living tissue can stretch and grow larger, or pull together and grow smaller. That is, both the heart and the blood vessels may at one time contract or grow smaller and at another expand or grow larger.

"The blood in the circulatory system is constantly under pressure. This pressure is produced by the contractions of the heart and also by the tension of the blood vessels.

How Pressure Is Measured

"Now," the doctor would continue, "when I take your blood pressure, I put a rubber sleeve around your left arm at about the level of your heart. Connected with this sleeve is a clock and a little pump. By means of the pump I pump air into the sleeve, and the dial tells me how much pressure I've applied. My ear tubes, or stethoscope, I place over your artery and I am all set.

"Then I begin pumping air into the sleeve; through my stethoscope I listen to the sounds in the artery, and watch the dial. I pump air into the rubber sleeve until the pressure in it is great enough completely to block your artery. I know when I have completely blocked your artery by the fact that I no longer hear any thumping nor can I feel the pulse at your wrist.

"I read the dial and find it registering 120. What does the 120 mean? It means that it takes the pressure of 120 millimeters of mercury to overcome the pressure produced by your heart and blood vessels. I call that the systolic pressure. It represents the greatest amount of pressure found in your blood system, the pressure produced at the instant when your heart has contracted or pulled together to the utmost. Then I let out some of the air in the sleeve and I listen again. At first the thumping returns. Then when I've let out enough air the thumping disappears. Again I read the dial. It shows 80. This is diastolic pressure; it represents the pressure of the blood in your vessels when the heart is at rest.

The Final Calculation

"Now, if I subtracted the diastolic pressure, 80, from the systolic pressure, 120, I get what is known as the pulse pressure—that is, if there is a pressure of 80 when the heart is at rest, and a pressure of 120 when the heart has contracted or pulled together, I know that the pressure produced by the heart must be the difference between 80 and 120—that is 40."

At this point, fearing that the doctor may go deeper into technical matters, you steer him your way by asking, "What is high blood pressure?" To which the doctor replies:

"A high blood pressure simply means that the blood in the heart and blood vessels is under a tension greater than normal. Instead of being under a pressure of 120, it is under a pressure of 180 or 200, or even as high as 220. But this in itself doesn't mean much. What I as a doctor am interested in is not the high blood pressure, but the cause behind it.

Two General Causes

"The causes of high blood pressure are many and various, but they may be divided into two general groups. One is called functional and the other organic. In the first group high blood pressure exists without any evident change in the body machinery. In the second group the high blood pressure is due to some defect or fault in the physical mechanism of the human organism.

"The first group of high blood pressure, the functional group, is mainly caused by some emotional disturbance like

nervousness, anxiety, worry, fear or excitement. In the second group, we find the causes listed under the heading germ diseases, overweight, long-lasting fevers, chronic poisonings with tobacco, alcohol, or other such substances; overwork, and living, as Sir WILLIAM OSLER put it, 'like keen business men, who work hard, drink hard, smoke hard and ultimately have hard arteries.'

"The first group of high blood pressures, those due to emotional disturbances, has been named by some ingenious author 'Americanitis' He maintains and maintains correctly, I think, that these types of high blood pressure are due to the intense manner of living so common among Americans."

Now it must be evident that in order to avoid high blood pressure, you must ever bear in mind its causes. Thus to maintain a normal blood pressure you should avoid excessive emotional disturbances as much as is reasonably possible, and you should particularly try to escape Americanitis by easing up your daily life. If you are of the kind that cannot relax while you are on the go, stop going every once in a while and relax then. Don't over-eat. Over-indulgence in food puts a tax on all your machinery. Have yourself examined periodically, say at least once every year, and have the doctor and the dentist check up on you, with special attention to focal infections. Focal infections are small festering areas which continually drain their poisons into the body but which need not of themselves cause any disagreeable symptoms.

Such focal infections are most commonly found at the roots of bad teeth, in the nose and throat, in the tonsils, in the head cavities, and occasionally in the internal parts of the body.

Sometimes high blood pressure is caused by glandular disturbances. Here of course only the physician who has examined the patient thoroughly is in a position to make the diagnosis and indicate treatment.

Kidneys May Be Factor

Chronic diseases of the kidneys may cause high blood pressure. These kidney changes may result in the first place from an infection, a childhood contagious disease, or from bad living habits—over-eating, drinking, etc. There is much that you can do to prevent these changes in the kidneys by proper living, and by the avoidance of infections. There is also much that the doctor can do by advising about changes in your habits to prevent the further development of diseases of the kidneys, and to aid the body to readjust itself to the conditions of the organs.

These, in brief, can be given as recommendations for the prevention of high blood pressure.

If high blood pressure has already developed you should place and keep yourself under the care of a competent physician, clinic or hospital, where your condition can be studied, properly diagnosed and treated. And since the causes for high blood pressure are numerous, the methods of treatment must vary according to the cause.

Peace and Sleep Helpful

There isn't much therefore that can, in a specific manner, be recommended to the person suffering with high blood pressure. However, one or two points are of universal worth. Thus the individual with high blood pressure, no matter what the cause may be, should avoid excitement and should avoid sudden strains, both physical and mental.

It is best that such an individual sleep long hours. Also, something that is hard to follow but which certainly must be advised, is that the person with high blood pressure should avoid worry. Worry raises the blood pressure and does the sufferer no good. In fact, it is very illogical to worry about high blood pressure. In itself high blood pressure is not a disease—on the contrary, probably in many cases it is evidence that the body is trying to compensate, to make good through increased blood pressure, for some defect elsewhere in the body.

The intelligent doctor ordinarily doesn't worry about the blood pressure—he is concerned with its causes, and neither should you worry about your blood pressure. Let your doctor tell you what's wrong, follow his instructions carefully, and in the end you will be better off.

The following is a partial list of other Health Publications issued by the Metropolitan Life Insurance Company:

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